

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Alfred Kobsa

University of California, Irvine, CA, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

TU Dortmund University, Germany

Madhu Sudan

Microsoft Research, Cambridge, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbruecken, Germany

Constantine Stephanidis
Margherita Antona (Eds.)

Universal Access in Human-Computer Interaction

Applications and Services
for Quality of Life

7th International Conference, UAHCI 2013
Held as Part of HCI International 2013
Las Vegas, NV, USA, July 21-26, 2013
Proceedings, Part III



Springer

Volume Editors

Constantine Stephanidis

Foundation for Research and Technology - Hellas (FORTH)

Institute of Computer Science (ICS)

N. Plastira 100, Vassilika Vouton, 70013 Heraklion, Crete, Greece

and University of Crete, Department of Computer Science

Heraklion, Crete, Greece

E-mail: cs@ics.forth.gr

Margherita Antona

Foundation for Research and Technology - Hellas (FORTH)

Institute of Computer Science (ICS)

N. Plastira 100, Vassilika Vouton, 70013 Heraklion, Crete, Greece

E-mail: antona@ics.forth.gr

ISSN 0302-9743

e-ISSN 1611-3349

ISBN 978-3-642-39193-4

e-ISBN 978-3-642-39194-1

DOI 10.1007/978-3-642-39194-1

Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2013941140

CR Subject Classification (1998): H.5, K.4, J.3, H.4, H.3

LNCS Sublibrary: SL 3 – Information Systems and Application, incl. Internet/Web and HCI

© Springer-Verlag Berlin Heidelberg 2013

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Foreword

The 15th International Conference on Human–Computer Interaction, HCI International 2013, was held in Las Vegas, Nevada, USA, 21–26 July 2013, incorporating 12 conferences / thematic areas:

Thematic areas:

- Human–Computer Interaction
- Human Interface and the Management of Information

Affiliated conferences:

- 10th International Conference on Engineering Psychology and Cognitive Ergonomics
- 7th International Conference on Universal Access in Human–Computer Interaction
- 5th International Conference on Virtual, Augmented and Mixed Reality
- 5th International Conference on Cross-Cultural Design
- 5th International Conference on Online Communities and Social Computing
- 7th International Conference on Augmented Cognition
- 4th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management
- 2nd International Conference on Design, User Experience and Usability
- 1st International Conference on Distributed, Ambient and Pervasive Interactions
- 1st International Conference on Human Aspects of Information Security, Privacy and Trust

A total of 5210 individuals from academia, research institutes, industry and governmental agencies from 70 countries submitted contributions, and 1666 papers and 303 posters were included in the program. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of Human–Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas.

This volume, edited by Constantine Stephanidis and Margherita Antona, contains papers focusing on the thematic area of Universal Access in Human–Computer Interaction, and addressing the following major topics:

- Universal Access to Smart Environments and Ambient Assisted Living
- Universal Access to Learning and Education
- Universal Access to Text, Books, eBooks and Digital Libraries
- Health, Well-Being, Rehabilitation and Medical Applications
- Access to Mobile Interaction

The remaining volumes of the HCI International 2013 proceedings are:

- Volume 1, LNCS 8004, Human–Computer Interaction: Human-Centred Design Approaches, Methods, Tools and Environments (Part I), edited by Masaaki Kurosu
- Volume 2, LNCS 8005, Human–Computer Interaction: Applications and Services (Part II), edited by Masaaki Kurosu
- Volume 3, LNCS 8006, Human–Computer Interaction: Users and Contexts of Use (Part III), edited by Masaaki Kurosu
- Volume 4, LNCS 8007, Human–Computer Interaction: Interaction Modalities and Techniques (Part IV), edited by Masaaki Kurosu
- Volume 5, LNCS 8008, Human–Computer Interaction: Towards Intelligent and Implicit Interaction (Part V), edited by Masaaki Kurosu
- Volume 6, LNCS 8009, Universal Access in Human–Computer Interaction: Design Methods, Tools and Interaction Techniques for eInclusion (Part I), edited by Constantine Stephanidis and Margherita Antona
- Volume 7, LNCS 8010, Universal Access in Human–Computer Interaction: User and Context Diversity (Part II), edited by Constantine Stephanidis and Margherita Antona
- Volume 9, LNCS 8012, Design, User Experience, and Usability: Design Philosophy, Methods and Tools (Part I), edited by Aaron Marcus
- Volume 10, LNCS 8013, Design, User Experience, and Usability: Health, Learning, Playing, Cultural, and Cross-Cultural User Experience (Part II), edited by Aaron Marcus
- Volume 11, LNCS 8014, Design, User Experience, and Usability: User Experience in Novel Technological Environments (Part III), edited by Aaron Marcus
- Volume 12, LNCS 8015, Design, User Experience, and Usability: Web, Mobile and Product Design (Part IV), edited by Aaron Marcus
- Volume 13, LNCS 8016, Human Interface and the Management of Information: Information and Interaction Design (Part I), edited by Sakae Yamamoto
- Volume 14, LNCS 8017, Human Interface and the Management of Information: Information and Interaction for Health, Safety, Mobility and Complex Environments (Part II), edited by Sakae Yamamoto
- Volume 15, LNCS 8018, Human Interface and the Management of Information: Information and Interaction for Learning, Culture, Collaboration and Business (Part III), edited by Sakae Yamamoto
- Volume 16, LNAI 8019, Engineering Psychology and Cognitive Ergonomics: Understanding Human Cognition (Part I), edited by Don Harris
- Volume 17, LNAI 8020, Engineering Psychology and Cognitive Ergonomics: Applications and Services (Part II), edited by Don Harris
- Volume 18, LNCS 8021, Virtual, Augmented and Mixed Reality: Designing and Developing Augmented and Virtual Environments (Part I), edited by Randall Shumaker
- Volume 19, LNCS 8022, Virtual, Augmented and Mixed Reality: Systems and Applications (Part II), edited by Randall Shumaker

- Volume 20, LNCS 8023, Cross-Cultural Design: Methods, Practice and Case Studies (Part I), edited by P.L. Patrick Rau
- Volume 21, LNCS 8024, Cross-Cultural Design: Cultural Differences in Everyday Life (Part II), edited by P.L. Patrick Rau
- Volume 22, LNCS 8025, Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management: Healthcare and Safety of the Environment and Transport (Part I), edited by Vincent G. Duffy
- Volume 23, LNCS 8026, Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management: Human Body Modeling and Ergonomics (Part II), edited by Vincent G. Duffy
- Volume 24, LNAI 8027, Foundations of Augmented Cognition, edited by Dylan D. Schmorrow and Cali M. Fidopiastis
- Volume 25, LNCS 8028, Distributed, Ambient and Pervasive Interactions, edited by Norbert Streitz and Constantine Stephanidis
- Volume 26, LNCS 8029, Online Communities and Social Computing, edited by A. Ant Ozok and Panayiotis Zaphiris
- Volume 27, LNCS 8030, Human Aspects of Information Security, Privacy and Trust, edited by Louis Marinos and Ioannis Askoxylakis
- Volume 28, CCIS 373, HCI International 2013 Posters Proceedings (Part I), edited by Constantine Stephanidis
- Volume 29, CCIS 374, HCI International 2013 Posters Proceedings (Part II), edited by Constantine Stephanidis

I would like to thank the Program Chairs and the members of the Program Boards of all affiliated conferences and thematic areas, listed below, for their contribution to the highest scientific quality and the overall success of the HCI International 2013 conference.

This conference could not have been possible without the continuous support and advice of the Founding Chair and Conference Scientific Advisor, Prof. Gavriel Salvendy, as well as the dedicated work and outstanding efforts of the Communications Chair and Editor of HCI International News, Abbas Moallem.

I would also like to thank for their contribution towards the smooth organization of the HCI International 2013 Conference the members of the Human-Computer Interaction Laboratory of ICS-FORTH, and in particular George Paparoulis, Maria Pitsoulaki, Stavroula Ntoa, Maria Bouhli and George Kapnas.

May 2013

Constantine Stephanidis
General Chair, HCI International 2013

Organization

Human–Computer Interaction

Program Chair: Masaaki Kurosu, Japan

Jose Abdelnour-Nocera, UK	Kyungdoh Kim, South Korea
Sebastiano Bagnara, Italy	Heidi Krömker, Germany
Simone Barbosa, Brazil	Chen Ling, USA
Tomas Berns, Sweden	Yan Liu, USA
Nigel Bevan, UK	Zhengjie Liu, P.R. China
Simone Borsci, UK	Loïc Martínez Normand, Spain
Apala Lahiri Chavan, India	Chang S. Nam, USA
Sherry Chen, Taiwan	Naoko Okuizumi, Japan
Kevin Clark, USA	Noriko Osaka, Japan
Torkil Clemmensen, Denmark	Philippe Palanque, France
Xiaowen Fang, USA	Hans Persson, Sweden
Shin'ichi Fukuzumi, Japan	Ling Rothrock, USA
Vicki Hanson, UK	Naoki Sakakibara, Japan
Ayako Hashizume, Japan	Dominique Scapin, France
Anzai Hiroyuki, Italy	Guangfeng Song, USA
Sheue-Ling Hwang, Taiwan	Sanjay Tripathi, India
Wonil Hwang, South Korea	Chui Yin Wong, Malaysia
Minna Isomursu, Finland	Toshiki Yamaoka, Japan
Yong Gu Ji, South Korea	Kazuhiko Yamazaki, Japan
Esther Jun, USA	Ryoji Yoshitake, Japan
Mitsuhiko Karashima, Japan	Silvia Zimmermann, Switzerland

Human Interface and the Management of Information

Program Chair: Sakae Yamamoto, Japan

Hans-Jorg Bullinger, Germany	Mark Lehto, USA
Alan Chan, Hong Kong	Hiroyuki Miki, Japan
Gilsoo Cho, South Korea	Hirohiko Mori, Japan
Jon R. Gunderson, USA	Fiona Fui-Hoon Nah, USA
Shin'ichi Fukuzumi, Japan	Shogo Nishida, Japan
Michitaka Hirose, Japan	Robert Proctor, USA
Jhilmil Jain, USA	Youngho Rhee, South Korea
Yasufumi Kume, Japan	Katsunori Shimohara, Japan

Michale Smith, USA
 Tsutomu Tabe, Japan
 Hiroshi Tsuji, Japan

Kim-Phuong Vu, USA
 Tomio Watanabe, Japan
 Hidekazu Yoshikawa, Japan

Engineering Psychology and Cognitive Ergonomics

Program Chair: Don Harris, UK

Guy Andre Boy, USA
 Joakim Dahlman, Sweden
 Trevor Dobbins, UK
 Mike Feary, USA
 Shan Fu, P.R. China
 Michaela Heese, Austria
 Hung-Sying Jing, Taiwan
 Wen-Chin Li, Taiwan
 Mark A. Neerinx, The Netherlands
 Jan M. Noyes, UK
 Taezoon Park, Singapore

Paul Salmon, Australia
 Axel Schulte, Germany
 Siraj Shaikh, UK
 Sarah C. Sharples, UK
 Anthony Smoker, UK
 Neville A. Stanton, UK
 Alex Stedmon, UK
 Xianghong Sun, P.R. China
 Andrew Thatcher, South Africa
 Matthew J.W. Thomas, Australia
 Rolf Zon, The Netherlands

Universal Access in Human–Computer Interaction

Program Chairs: Constantine Stephanidis, Greece, and Margherita Antona, Greece

Julio Abascal, Spain
 Ray Adams, UK
 Gisela Susanne Bahr, USA
 Margit Betke, USA
 Christian Bühler, Germany
 Stefan Carmien, Spain
 Jerzy Charytonowicz, Poland
 Carlos Duarte, Portugal
 Pier Luigi Emiliani, Italy
 Qin Gao, P.R. China
 Andrina Granić, Croatia
 Andreas Holzinger, Austria
 Josette Jones, USA
 Simeon Keates, UK

Georgios Kouroupetroglou, Greece
 Patrick Langdon, UK
 Seongil Lee, Korea
 Ana Isabel B.B. Paraguay, Brazil
 Helen Petrie, UK
 Michael Pieper, Germany
 Enrico Pontelli, USA
 Jaime Sanchez, Chile
 Anthony Savidis, Greece
 Christian Stary, Austria
 Hirotada Ueda, Japan
 Gerhard Weber, Germany
 Harald Weber, Germany

Virtual, Augmented and Mixed Reality

Program Chair: Randall Shumaker, USA

Waymon Armstrong, USA
 Juan Cendan, USA
 Rudy Darken, USA
 Cali M. Fidopiastis, USA
 Charles Hughes, USA
 David Kaber, USA
 Hirokazu Kato, Japan
 Denis Laurendeau, Canada
 Fotis Liarokapis, UK

Mark Livingston, USA
 Michael Macedonia, USA
 Gordon Mair, UK
 Jose San Martin, Spain
 Jacquelyn Morie, USA
 Albert “Skip” Rizzo, USA
 Kay Stanney, USA
 Christopher Stapleton, USA
 Gregory Welch, USA

Cross-Cultural Design

Program Chair: P.L. Patrick Rau, P.R. China

Pilsung Choe, P.R. China
 Henry Been-Lirn Duh, Singapore
 Vanessa Evers, The Netherlands
 Paul Fu, USA
 Zhiyong Fu, P.R. China
 Fu Guo, P.R. China
 Sung H. Han, Korea
 Toshikazu Kato, Japan
 Dyi-Yih Michael Lin, Taiwan
 Rungtai Lin, Taiwan

Sheau-Farn Max Liang, Taiwan
 Liang Ma, P.R. China
 Alexander Mädche, Germany
 Katsuhiko Ogawa, Japan
 Tom Plocher, USA
 Kerstin Röse, Germany
 Supriya Singh, Australia
 Hsiu-Ping Yueh, Taiwan
 Liang (Leon) Zeng, USA
 Chen Zhao, USA

Online Communities and Social Computing

Program Chairs: A. Ant Ozok, USA, and Panayiotis Zaphiris, Cyprus

Areej Al-Wabil, Saudi Arabia
 Leonelo Almeida, Brazil
 Bjørn Andersen, Norway
 Chee Siang Ang, UK
 Aneesha Bakharia, Australia
 Ania Bobrowicz, UK
 Paul Cairns, UK
 Farzin Deravi, UK
 Andri Ioannou, Cyprus
 Slava Kisilevich, Germany

Niki Lambropoulos, Greece
 Effie Law, Switzerland
 Soo Ling Lim, UK
 Fernando Loizides, Cyprus
 Gabriele Meiselwitz, USA
 Anthony Norcio, USA
 Elaine Raybourn, USA
 Panote Siriaraya, UK
 David Stuart, UK
 June Wei, USA

Augmented Cognition

Program Chairs: Dylan D. Schmorrow, USA, and Cali M. Fidopiastis, USA

Robert Arrabito, Canada

Richard Backs, USA

Chris Berka, USA

Joseph Cohn, USA

Martha E. Crosby, USA

Julie Drexler, USA

Ivy Estabrooke, USA

Chris Forsythe, USA

Wai Tat Fu, USA

Rodolphe Gentili, USA

Marc Grootjen, The Netherlands

Jefferson Grubb, USA

Ming Hou, Canada

Santosh Mathan, USA

Rob Matthews, Australia

Dennis McBride, USA

Jeff Morrison, USA

Mark A. Neerincx, The Netherlands

Denise Nicholson, USA

Banu Onaral, USA

Lee Sciarini, USA

Kay Stanney, USA

Roy Stripling, USA

Rob Taylor, UK

Karl van Orden, USA

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Program Chair: Vincent G. Duffy, USA and Russia

Karim Abdel-Malek, USA

Giuseppe Andreoni, Italy

Daniel Carruth, USA

Eliza Yingzi Du, USA

Enda Fallon, Ireland

Afzal Godil, USA

Ravindra Goonetilleke, Hong Kong

Bo Hoege, Germany

Waldemar Karwowski, USA

Zhizhong Li, P.R. China

Kang Li, USA

Tim Marler, USA

Michelle Robertson, USA

Matthias Rötting, Germany

Peter Vink, The Netherlands

Mao-Jiun Wang, Taiwan

Xuguang Wang, France

Jingzhou (James) Yang, USA

Xiangan Yuan, P.R. China

Gülcin Yücel Hoge, Germany

Design, User Experience, and Usability

Program Chair: Aaron Marcus, USA

Sisira Adikari, Australia

Ronald Baecker, Canada

Arne Berger, Germany

Jamie Blustein, Canada

Ana Boa-Ventura, USA

Jan Brejcha, Czech Republic

Lorenzo Cantoni, Switzerland

Maximilian Eibl, Germany

Anthony Faiola, USA
 Emilie Gould, USA
 Zelda Harrison, USA
 Rüdiger Heimgärtner, Germany
 Brigitte Herrmann, Germany
 Steffen Hess, Germany
 Kaleem Khan, Canada

Jennifer McGinn, USA
 Francisco Rebelo, Portugal
 Michael Renner, Switzerland
 Kerem Rızvanoğlu, Turkey
 Marcelo Soares, Brazil
 Christian Sturm, Germany
 Michele Visciola, Italy

Distributed, Ambient and Pervasive Interactions

Program Chairs: Norbert Streitz, Germany, and Constantine Stephanidis, Greece

Emile Aarts, The Netherlands
 Adnan Abu-Dayya, Qatar
 Juan Carlos Augusto, UK
 Boris de Ruyter, The Netherlands
 Anind Dey, USA
 Dimitris Grammenos, Greece
 Nuno M. Guimaraes, Portugal
 Shin'ichi Konomi, Japan
 Carsten Magerkurth, Switzerland

Christian Müller-Tomfelde, Australia
 Fabio Paternó, Italy
 Gilles Privat, France
 Harald Reiterer, Germany
 Carsten Röcker, Germany
 Reiner Wichert, Germany
 Woontack Woo, South Korea
 Xenophon Zabulis, Greece

Human Aspects of Information Security, Privacy and Trust

Program Chairs: Louis Marinou, ENISA EU, and Ioannis Askoxylakis, Greece

Claudio Agostino Ardagna, Italy
 Zinaida Benenson, Germany
 Daniele Catteddu, Italy
 Raoul Chiesa, Italy
 Bryan Cline, USA
 Sadie Creese, UK
 Jorge Cuellar, Germany
 Marc Dacier, USA
 Dieter Gollmann, Germany
 Kirstie Hawkey, Canada
 Jaap-Henk Hoepman, The Netherlands
 Cagatay Karabat, Turkey
 Angelos Keromytis, USA
 Ayako Komatsu, Japan

Ronald Leenes, The Netherlands
 Javier Lopez, Spain
 Steve Marsh, Canada
 Gregorio Martinez, Spain
 Emilio Mordini, Italy
 Yuko Murayama, Japan
 Masakatsu Nishigaki, Japan
 Aljosa Pasic, Spain
 Milan Petković, The Netherlands
 Joachim Posegga, Germany
 Jean-Jacques Quisquater, Belgium
 Damien Sauveron, France
 George Spanoudakis, UK
 Kerry-Lynn Thomson, South Africa

Julien Touzeau, France
Theo Tryfonas, UK
João Vilela, Portugal

Claire Vishik, UK
Melanie Volkamer, Germany

External Reviewers

Maysoon Abulkhair, Saudi Arabia
Ilia Adami, Greece
Vishal Barot, UK
Stephan Böhm, Germany
Vassilis Charissis, UK
Francisco Cipolla-Ficarra, Spain
Maria De Marsico, Italy
Marc Fabri, UK
David Fonseca, Spain
Linda Harley, USA
Yasushi Ikei, Japan
Wei Ji, USA
Nouf Khashman, Canada
John Killilea, USA
Iosif Klironomos, Greece
Ute Klotz, Switzerland
Maria Korozi, Greece
Kentaro Kotani, Japan

Vassilis Kouroumalis, Greece
Stephanie Lackey, USA
Janelle LaMarche, USA
Asterios Leonidis, Greece
Nickolas Macchiarella, USA
George Margetis, Greece
Matthew Marraffino, USA
Joseph Mercado, USA
Claudia Mont'Alvão, Brazil
Yoichi Motomura, Japan
Karsten Nebe, Germany
Stavroula Ntoa, Greece
Martin Osen, Austria
Stephen Prior, UK
Farid Shirazi, Canada
Jan Stelovsky, USA
Sarah Swierenga, USA

HCI International 2014

The 16th International Conference on Human–Computer Interaction, HCI International 2014, will be held jointly with the affiliated conferences in the summer of 2014. It will cover a broad spectrum of themes related to Human–Computer Interaction, including theoretical issues, methods, tools, processes and case studies in HCI design, as well as novel interaction techniques, interfaces and applications. The proceedings will be published by Springer. More information about the topics, as well as the venue and dates of the conference, will be announced through the HCI International Conference series website: <http://www.hci-international.org/>

General Chair

Professor Constantine Stephanidis
University of Crete and ICS-FORTH
Heraklion, Crete, Greece
Email: cs@ics.forth.gr

Table of Contents – Part III

Universal Access to Smart Environments and Ambient Assisted Living

Design for Adapted Devices: An Evaluation Tool of Smart Things for Seniors	3
<i>Javier Barcenilla, Charles Tijus, Djamel Aissaoui, and Eric Brangier</i>	
Shaping an Integrating Kitchen Space with Gesture-Based Control System	12
<i>Agata Bonenberg</i>	
Universal Access: A Concept to Be Adapted to Technological Development and Societal Change	22
<i>Laura Burzagli and Pier Luigi Emiliani</i>	
Collective Intelligence for Einclusion	30
<i>Laura Burzagli and Pier Luigi Emiliani</i>	
Ambient Assistive Technology Considered Harmful	38
<i>Yngve Dahl, Babak Farshchian, Anders Kofod-Petersen, Silje Bøthun, Kristine Holbø, and Jarl Kåre Reitan</i>	
Home Robots, Learn by Themselves	48
<i>Osamu Hasegawa and Daiki Kimura</i>	
The Future of Universal Access? Merging Computing, Design and Engineering	54
<i>Simeon Keates, David Bradley, and Andrew Sapeluk</i>	
WorkSense: An Interactive Space Design for Future Workplace	64
<i>Hsuan-Cheng Lin and Taysheng Jeng</i>	
Building Up Virtual Environments Using Gestures	70
<i>Alexander Marinc, Carsten Stocklów, and Andreas Braun</i>	
Gathering the Users' Needs in the Development of Assistive Technology: A Blind Navigation System Use Case	79
<i>Hugo Paredes, Hugo Fernandes, Paulo Martins, and João Barroso</i>	
Ambient Assisted Living Development in East Slovakia	89
<i>Dušan Šimšik, Alena Galajdová, Daniel Siman, and Daniela Onofrejová</i>	

Resource Management for Multimodal and Multilingual Adaptation of User Interfaces in Ambient Assisted Living Environments	97
<i>Carsten Stockl�w, Andrej Grguric, Tim Dutz, Tjark Vandommele, and Arjan Kuijper</i>	

An Integration Framework for Motion and Visually Impaired Virtual Humans in Interactive Immersive Environments	107
<i>Frank Sulzmann, Roland Blach, and Manfred Dangelmaier</i>	

BioCyberUrban parQ: An Ubiquitous and Pervasive Computing System for Environmental Integration	116
<i>Suzete Venturelli, Francisco de Paula Barretto, and Andr� Bassani de Freitas</i>	

Universal Access to Learning and Education

Approaches to E-Learning	127
<i>Susanne Akrawi Hartvig and Eva Petersson Brooks</i>	

Deaf Students and Comic Hypermedia: Proposal of Accessible Learning Object	133
<i>Raul In�cio Busarello, Vania Ribas Ulbricht, Patricia Bieging, and Vilma Villarouco</i>	

Developing Story Performing System for Children	143
<i>Chien-Hsu Chen, Shao-Yu Wang, and Yi-Chai Nina Lee</i>	

Introducing an Information System for Successful Support of Selective Attention in Online Courses	153
<i>Martin Ebner, Josef Wachtler, and Andreas Holzinger</i>	

Development of the Hearing Communication System in an Individual and the Classroom	163
<i>Manabu Ishihara, Shin-nosukei Suzuki, and Jun Shirataki</i>	

Design and Development of Accessible Educational and Teaching Material for Deaf Students in Greece	172
<i>Vassilis Kourbetis</i>	

Universal Design and Accessibility Standards in Online Learning Objects	179
<i>Cl�udia Mara Scudelari de Macedo and Vania Ribas Ulbricht</i>	

Effective Usage of Stereoscopic Visualization for the Learning of a Motional Mechanism	187
<i>Shu Matsuura</i>	

Educational Inclusiveness through Ludic Engagement and Digital Creativity	195
<i>Rachel McCrindle</i>	
Can Accessible Digital Formats Improve Reading Skills, Habits and Educational Level for Dyslectic Youngsters?	203
<i>Simon Moe and Michael Wright</i>	
Using Mediated Communication to Teach Vocational Concepts to Deaf Users	213
<i>Ingrid Teixeira Monteiro, Aline da Silva Alves, and Clarisse Sieckenius de Souza</i>	
The Effects of Projector Arrangement on Children Physical Activity	223
<i>Loan Ngo and Fong-Gong Wu</i>	
Addressing Learning Disabilities in Ambient Intelligence Educational Environments	231
<i>Stavroula Ntoa, Margherita Antona, George Margetis, and Constantine Stephanidis</i>	
Ludic Engagement Designs: Creating Spaces for Playful Learning	241
<i>Eva Petersson Brooks</i>	
Supporting Accessibility in Higher Education Information Systems	250
<i>Arsénio Reis, João Barroso, and Ramiro Gonçalves</i>	
Social Media as Online Mentoring Tools for STEM Students With and Without Disabilities	256
<i>Robert L. Todd</i>	
Pupils' Satisfaction in Using Netbook	266
<i>Fong-Gong Wu, Chii-Zen Yu, and Chiu-Min Yen</i>	
Effectiveness of Learning Chinese Character Using Tablet Technology	272
<i>Chao-Yang Yang, Ting-Yi Chiu-Huang, and Yu-Ting Wu</i>	

Universal Access to Text, Books, eBooks and Digital Libraries

AcceSciTech: A Global Approach to Make Scientific and Technical Literature Accessible	283
<i>Alex Bernier and Dominique Burger</i>	
Exploration of Picture E-Book Design for App Web	291
<i>Cheih-Ying Chen and Hung-Chieh Chang</i>	
Read-Aid - An Assistive Reading Tool for Children with Dyslexia	297
<i>Suvarna Rekha, Sai Gollapudi, Harini Sampath, and Bipin Indurkha</i>	

Comparison of the Effectiveness of Different Accessibility Plugins Based on Important Accessibility Criteria	305
<i>Alireza Darvishy and Hans-Peter Hutter</i>	
Nonvisual Presentation and Navigation within the Structure of Digital Text-Documents on Mobile Devices	311
<i>Martin Lukas Dorigo, Bettina Harriehausen-Mühlbauer, Ingo Stengel, and Paul S. Haskell-Dowland</i>	
Usability of Web Search Interfaces for Blind Users – A Review of Digital Academic Library User Interfaces	321
<i>Tapio Haanperä and Marko Nieminen</i>	
Design and Developing Methodology for 8-dot Braille Code Systems	331
<i>Hernisa Kacorri and Georgios Kouroupetroglou</i>	
Effects of Environmental Illuminance on the Readability of E-Books	341
<i>Tatsuya Koizuka, Takehito Kojima, Shunta Sano, Nobuhiro Ishio, and Masaru Miyao</i>	
Verification of the Minimum Illuminance for Comfortable Reading of an E-Paper	348
<i>Takehito Kojima, Shunta Sano, Nobuhiro Ishio, Tatsuya Koizuka, and Masaru Miyao</i>	
Aging Effects on the Readability of Characters on E-Book Terminals	356
<i>Ranson Paul Lege, Satoshi Hasegawa, Akira Hasegawa, Takehito Kojima, and Masaru Miyao</i>	
Improving Communication of Visual Signals by Text-to-Speech Software	364
<i>Robert F. Lorch Jr. and Julie Lemarié</i>	
Online Digital Libraries at Universities: An Inclusive Proposal	372
<i>Amanda Meincke Melo and Joseane Giacomelli da Silva</i>	
Access to Books: Human Rights, Copyright and Accessibility	382
<i>Abigail P. Rekas</i>	
Providing an Accessible Track Changes Feature for Persons Who Are Blind	389
<i>John G. Schoeberlein and Yuanqiong Wang</i>	
Improving the Accessibility of Digital Documents for Blind Users: Contributions of the Textual Architecture Model	399
<i>Laurent Sorin, Mustapha Mojahid, Nathalie Aussenac-Gilles, and Julie Lemarié</i>	

Adopting Open Protocols to Increase the Impact on Digital Repositories	408
<i>Ligia Eliana Setenareski, Marcos Sfair Sunye, and Walter Shima</i>	

Health, Well-Being, Rehabilitation and Medical Applications

A Pilot Study: Integrating an Emergency Department with Indiana’s Prescription Drug Monitoring Program	419
<i>Hamed Abedtash and John T. Finnell</i>	

Can Ubiquitous Devices Utilising Reminiscence Therapy Be Used to Promote Well-Being in Dementia Patients? An Exploratory Study ...	426
<i>Claire Ancient, Alice Good, Clare Wilson, and Tineke Fitch</i>	

Human Computer Confluence in Rehabilitation: Digital Media Plasticity and Human Performance Plasticity	436
<i>Anthony Lewis Brooks</i>	

Universal Conceptual Design Solution for Built-in Orthopaedic Rocker-Bar Device	446
<i>Robert C.C. Chen</i>	

User Acceptance of a Community-Based Healthcare Information System Preserving User Privacy	453
<i>Chien-Lung Hsu and Ming-Ren Lee</i>	

Application of Human Error Identification (HEI) Techniques to Cognitive Rehabilitation in Stroke Patients with Limb Apraxia	463
<i>Charmayne M.L. Hughes, Chris Baber, Marta Bienkiewicz, and Joachim Hermsdörfer</i>	

Facilitators and Barriers to Patients’ Engagements with Personal Health Records: Systematic Review	472
<i>Abdulrahman Jabour and Josette F. Jones</i>	

Complexity Analysis of a Transfer Center	482
<i>Josette F. Jones, Michelle Lenox, Tami Raute, Shelly Maersch, Cortney Gundlach, and Mark Pfaff</i>	

Analysis of User-Generated Multimedia Data on Medication Management and Consumption Behavior Using Data Mining Techniques	490
<i>Chaiwoo Lee, Lisa A. D’Ambrosio, Richard Myrick, Joseph F. Coughlin, and Olivier L. de Weck</i>	

Motion Sensing Technology on Rehabilitation for Children with Physical Disabilities	500
<i>Chien-Yu Lin, Ming-Chi Lin, and Shu-Hua Chen</i>	

A Surgery Planning System by Visualizing 3D Profile of the Knee during Motion for Anterior Cruciate Ligament Reconstruction	508
<i>Kouki Nagamune, Yuichiro Nishizawa, Daisuke Araki, Koji Nishimoto, Yuichi Hoshino, Ryosuke Kuroda, and Masahiro Kurosaka</i>	
Data Reduction for Continuum of Care: An Exploratory Study Using the Predicate-Argument Structure to Pre-process Radiology Sentences for Measurement of Semantic Similarity	516
<i>Eric Newsom and Josette F. Jones</i>	
Ontological Model for CDSS in Knee Injury Management	526
<i>Kanitha Phalakornkule, Josette F. Jones, and John T. Finnell</i>	
Content Analysis of Specialist Interviews in the Development of the Music Therapy Activity System	536
<i>Kevin C. Tseng and Chieh-Yun Liu</i>	
Supporting the Continuum of Care for Combat Wounded Patients: Adaptive Interfaces for Personal Health Records	544
<i>Harry D. Tunnell IV and Aeshvarya Verma</i>	
Design Guidelines for an Integrated PHR System: An Approach for UI Designers to Break Down Individual-Level Barriers to PHR Adoption	553
<i>Shu-Wen Tzeng and Yuan Zhou</i>	
Evaluation of User Interface of Computer Application Developed for Screening Pediatric Asthma	563
<i>Maryam Zolnoori, Josette F. Jones, Mostafa Moin, Hassan Heidarnejad, Mohammad Reza Fazlollahi, and Masoud Hosseini</i>	

Access to Mobile Interaction

Engaging Students with Intellectual Disabilities through Games Based Learning and Related Technologies	573
<i>David Brown, Penny Standen, Maria Saridaki, Nick Shopland, Elina Roiniotti, Lindsay Evett, Simon Grantham, and Pauline Smith</i>	
Multimedia Information Delivery on Mobile Cultural Applications	583
<i>Heloisa Candello</i>	
Creativity, Mobile Multimedia Systems, Human and Social Factors in Software: Communicability Excellence for All	593
<i>Francisco V. Cipolla Ficarra, Alejandra Quiroga, and Valeria M. Ficarra</i>	

Development of Smart Device-Based Thermostatic Control System Appling on Cooling Vests	603
<i>Jing-Jing Fang, Tai-Hong Kuo, and Cheng-Ying Wu</i>	
Dead-Until-Touched: How Digital Icons Can Transform the Way We Interact with Information	611
<i>Isabel Cristina G. Fróes</i>	
AwareCover: Interactive Cover of the Smartphone for Awareness Sharing	620
<i>Ayumi Fukuchi, Koji Tsukada, and Itiro Sii</i>	
Mobile Technology and E-Inclusion	626
<i>John Isaacs, Santiago Martinez, Ken Scott-Brown, Allan Milne, Aled Evans, and Daniel Gilmour</i>	
How Unfamiliar Words in Smartphone Manuals Affect Senior Citizens	636
<i>Tatsuya Ishihara, Masatomo Kobayashi, Hironobu Takagi, and Chieko Asakawa</i>	
The Relationship between Touchscreen Sizes of Smartphones and Hand Dimensions	643
<i>Yu-Cheng Lin</i>	
Tilt-Based Support for Multimodal Text Entry on Touchscreen Smartphones: Using Pitch and Roll	651
<i>Sandi Ljubic, Mihael Kukec, and Vlado Glavinic</i>	
Audio Transportation System for Blind People	661
<i>Jaime Sánchez and Márcia de Borba Campos</i>	
Towards Mobile Embodied 3D Avatar as Telepresence Vehicle	671
<i>Yutaka Tokuda, Atsushi Hiyama, Takahiro Miura, Tomohiro Tanikawa, and Michitaka Hirose</i>	
One-Handed Gesture Design for Browsing on Touch Phone	681
<i>Fong-Gong Wu and Jo-Yu Kuo</i>	
Author Index	691